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1066-LNAPL-GEO1 KAFB1066  
4/19/2011 8:25

ASTM D-6733

Shaw Environmental 111318-001

Component Name	Weight %	Liquid Volume %	Mole %	Molecular Weight
Propylene	0.01	0.01	0.03	42.08
Propane	0.01	0.02	0.03	44.10
Isobutane	0.01	0.01	0.02	58.12
1-Butene	0.01	0.01	0.02	56.11
N-Butane	0.01	0.01	0.02	58.12
Isopentane	0.15	0.19	0.27	72.15
N-Pentane	0.13	0.16	0.23	72.15
2,2-Dimethylbutane	0.03	0.04	0.04	86.18
Cyclopentane	0.03	0.03	0.05	70.13
2,3-Dimethylbutane	0.37	0.43	0.55	86.18
2-Methylpentane	0.34	0.40	0.50	86.18
3-Methylpentane	0.25	0.29	0.37	86.18
N-Hexane	0.50	0.58	0.74	86.18
2,2-Dimethylpentane	0.02	0.02	0.03	100.20
Methylcyclopentane	0.42	0.43	0.64	84.16
2,4-Dimethylpentane	0.44	0.50	0.56	100.20
2,2,3-Trimethylbutane	0.01	0.01	0.01	100.20
Benzene	0.22	0.19	0.36	78.11
3,3-Dimethylpentane	0.02	0.02	0.03	100.20
Cyclohexane	0.76	0.75	1.15	84.16
2-Methylhexane	0.48	0.54	0.61	100.20
2,3-Dimethylpentane	1.20	1.32	1.53	100.20
1,1-Dimethylcyclopentane	0.12	0.12	0.16	98.19
3-Methylhexane	0.68	0.76	0.87	100.20
Cis-1,3-dimethylcyclopentane	0.23	0.24	0.30	98.19
Trans-1,3-dimethylcyclopentane	0.23	0.24	0.30	98.19
3-Ethylpentane	0.07	0.08	0.09	100.20
Trans-1,2-dimethylcyclopentane	0.49	0.50	0.64	98.19
2,2,4-Trimethylpentane	3.37	3.73	3.76	114.23
N-Heptane	1.43	1.60	1.82	100.20
Methylcyclohexane	3.02	3.01	3.92	98.19
1,1,3-Trimethylcyclopentane	0.28	0.29	0.32	112.22
Ethylcyclopentane	0.21	0.21	0.27	98.19
2,5-Dimethylhexane	0.52	0.57	0.58	114.23
2,4-Dimethylhexane	0.67	0.73	0.75	114.23
Trans,cis-1,2,4-trimethylcyclopentane	0.29	0.30	0.33	112.22
3,3-Dimethylhexane	0.06	0.06	0.07	114.23
Trans,cis-1,2,3-trimethylcyclopentane	0.39	0.40	0.44	112.22
2,3,4-Trimethylpentane	1.27	1.35	1.42	114.23
Toluene	2.37	2.10	3.28	92.14
2,3,3-Trimethylpentane	1.14	1.21	1.27	114.23

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Component Name	Weight %	Liquid Volume %	Mole %	Molecular Weight
2,3-Dimethylhexane	0.70	0.75	0.78	114.23
2-Methyl-3-Ethylpentane	0.10	0.11	0.11	114.23
2-Methylheptane	1.30	1.43	1.45	114.23
4-Methylheptane	0.50	0.54	0.56	114.23
3,4-Dimethylhexane	0.12	0.13	0.13	114.23
Cis,trans,1,2,4-trimethylcyclopentane	0.03	0.03	0.03	112.22
Cis-1,3 dimethylcyclohexane	0.98	0.98	1.11	112.22
3-Methylheptane	1.16	1.26	1.30	114.23
3-Ethylhexane	0.19	0.20	0.21	114.23
Trans-1,4-dimethylcyclohexane	0.49	0.49	0.56	112.22
1,1-Dimethylcyclohexane	0.20	0.20	0.23	112.22
Trans-1-ethyl-3-methylcyclopentane	0.84	0.84	0.96	112.22
Cis-1-ethyl-3-methylcyclopentane	0.14	0.14	0.16	112.22
Trans-1-ethyl-2-methylcyclopentane	0.31	0.31	0.35	112.22
1-Ethyl-1-methylcyclopentane	0.05	0.05	0.06	112.22
Trans-1,2,dimethylcyclohexane	0.70	0.69	0.80	112.22
Trans-1,3,dimethylcyclohexane	0.24	0.23	0.27	112.22
Cis-1,4-dimethylcyclohexane	0.35	0.34	0.40	112.22
N-Octane	2.29	2.50	2.56	114.23
Isopropylcyclopentane	0.06	0.06	0.07	112.22
2,4,4-Trimethylhexane	0.04	0.04	0.04	128.26
2,2,5-Trimethylhexane	0.05	0.05	0.05	128.26
2,3,5-Trimethylhexane	0.15	0.16	0.15	128.26
Cis-1-ethyl-2-methylcyclopentane	0.03	0.03	0.03	112.22
2,2-Dimethylheptane	0.05	0.05	0.05	128.26
Cis-1,2-dimethylcyclohexane	0.11	0.11	0.13	112.22
2,4-Dimethylheptane	0.26	0.28	0.26	128.26
4,4-Dimethylheptane	0.04	0.04	0.04	128.26
Ethylcyclohexane	1.94	1.89	2.21	112.22
2-Methyl-4-ethylhexane	0.03	0.03	0.03	128.26
2,6-Dimethylheptane	0.71	0.77	0.71	128.26
1,1,3-Trimethylcyclohexane	0.92	0.91	0.93	126.24
C9 Naphthene	0.12	0.12	0.12	126.24
2,5-Dimethylheptane	0.40	0.43	0.40	128.26
3,5-Dimethylheptane	0.08	0.09	0.08	128.26
3,3-Dimethylheptane	0.07	0.07	0.07	128.26
C9 Naphthene	0.12	0.12	0.12	126.24
C9 Naphthene	0.06	0.06	0.06	126.24
Ethylbenzene	0.51	0.45	0.61	106.17
2,3,4,Trimethylhexane	0.02	0.02	0.02	128.26
Trans,trans,1,2,4-trimethylcyclohexane	0.20	0.20	0.20	126.24

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Component Name	Weight %	Liquid Volume %	Mole %	Molecular Weight
Cis,trans,1,3,5-trimethylcyclohexane	0.50	0.49	0.51	126.24
3,3,4,Trimethylhexane	0.03	0.03	0.03	128.26
Meta-Xylene	1.32	1.17	1.59	106.17
Para-Xylene	0.35	0.31	0.42	106.17
2,3-Dimethylheptane	0.41	0.43	0.41	128.26
3,4-Dimethylheptane D/L	0.25	0.26	0.25	128.26
3,4-Dimethylheptane L/D	0.03	0.03	0.03	128.26
4-Ethylheptane	0.11	0.12	0.11	128.26
4-Methyloctane	0.49	0.52	0.49	128.26
2-Methyloctane	0.64	0.69	0.64	128.26
Cis,cis,1,2,3,trimethylcyclohexane	0.05	0.05	0.05	126.24
Trans,cis,1,2,4,trimethylcyclohexane	0.16	0.16	0.16	126.24
3-Ethylheptane	0.13	0.14	0.13	128.26
3-Methyloctane	0.87	0.93	0.87	128.26
Cis,trans,1,2,4,trimethylcyclohexane	0.06	0.06	0.06	126.24
Cis,cis,1,2,4,trimethylcyclohexane	0.12	0.12	0.12	126.24
Ortho-Xylene	0.70	0.61	0.84	106.17
C9 Naphthene	0.03	0.03	0.03	126.24
Trans-1-Methyl-2-propylcyclopentane	0.17	0.16	0.17	126.24
Cis-1-ethyl-3-methylcyclohexane	0.82	0.79	0.83	126.24
Trans-1-ethyl-4-methylcyclohexane	0.40	0.38	0.40	126.24
Isobutylcyclopentane	0.09	0.09	0.09	126.24
Cis,trans,1,2,3,trimethylcyclohexane	0.05	0.05	0.05	126.24
Trans,trans,1,2,3,trimethylcyclohexane	0.05	0.05	0.05	126.24
N-Nonane	2.97	3.17	2.96	128.26
Trans-1-ethyl-3-methylcyclohexane	0.45	0.44	0.45	126.24
Trans-1-ethyl-2-methylcyclohexane	0.23	0.23	0.23	126.24
Cis-1-ethyl-4-methylcyclohexane	0.43	0.42	0.43	126.24
Isopropylbenzene	0.11	0.10	0.12	120.19
Sec-butylcyclopentane	0.11	0.11	0.11	126.24
Isopropylcyclohexane	0.15	0.14	0.15	126.24
2,4-Dimethyloctane	0.16	0.17	0.14	142.29
2,6-Dimethyloctane	0.90	0.95	0.81	142.29
2,5-Dimethyloctane	0.04	0.04	0.04	142.29
N-propylcyclohexane	0.79	0.76	0.80	126.24
N-butylcyclopentane	0.22	0.22	0.22	126.24
3,5-Dimethyloctane	0.11	0.12	0.10	142.29
2,7-Dimethyloctane	0.09	0.10	0.08	142.29
n-Propylbenzene	0.39	0.35	0.41	120.19
3,6-Dimethyloctane	0.42	0.44	0.38	142.29
3,3-Dimethyloctane	0.12	0.12	0.11	142.29

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Component Name	Weight %	Liquid Volume %	Mole %	Molecular Weight
1-Methyl-3-ethylbenzene	0.37	0.33	0.39	120.19
1-Methyl-4-ethylbenzene	0.13	0.12	0.14	120.19
4,5-Dimethyloctane	0.01	0.01	0.01	142.29
2,3-Dimethyloctane	0.35	0.36	0.31	142.29
1,3,5-Trimethylbenzene	0.26	0.23	0.28	120.19
4-Ethyoctane	0.10	0.11	0.09	142.29
C10 Naphthene	0.04	0.04	0.04	140.20
5-Methylnonane	0.14	0.15	0.13	142.29
4-Methylnonane	0.60	0.63	0.54	142.29
1-Methyl-2-ethylbenzene	0.16	0.14	0.17	120.19
2-Methylnonane	0.50	0.53	0.45	142.29
3-Ethyoctane	0.07	0.07	0.06	142.29
1,2,3,5 Tet-methylcyclohexane	0.16	0.16	0.15	140.20
3-Methylnonane	0.48	0.50	0.43	142.29
1,2,3,4 Tet-methylcyclohexane	0.08	0.08	0.07	140.20
C10 Naphthenes	0.74	0.72	0.67	140.20
C10 Paraffin	0.09	0.09	0.07	156.31
1,2,4-Trimethylbenzene	0.50	0.44	0.53	120.19
Cis-1-methyl-3-propylcyclohexane	0.33	0.32	0.30	140.27
Cis 1,3 diethylcyclohexane	0.46	0.45	0.42	140.27
Trans 1,4 diethylcyclohexane	0.06	0.06	0.05	140.27
Trans-1-methyl-3-propylcyclohexane	0.08	0.08	0.07	140.27
1-Ethyl-2,3-dimethylcyclohexane	0.12	0.12	0.11	140.27
Isobutylbenzene	0.20	0.18	0.19	134.22
sec-Butylbenzene	0.21	0.19	0.20	134.22
N-Decane	2.58	2.71	2.31	142.28
C10 Naphthene	0.08	0.08	0.07	140.27
Trans 1,3 diethylcyclohexane	0.07	0.07	0.06	140.27
1,2,3-Trimethylbenzene	0.21	0.18	0.22	120.19
1-Methyl-3-isopropylbenzene	0.14	0.12	0.13	134.22
1-Methyl-4-isopropylbenzene	0.08	0.07	0.08	134.22
Indan (2,3-Dihydroindene)	0.13	0.10	0.14	118.18
Sec-butylcyclohexane	0.28	0.27	0.25	140.27
1-Methyl-2-isopropylbenzene	0.86	0.75	0.82	134.22
Butylcyclohexane	0.16	0.15	0.15	140.27
1,3-Diethylbenzene	0.22	0.20	0.21	134.22
1-Methyl-3-n-propylbenzene	0.39	0.35	0.37	134.22
1-Methyl-4-n-propylbenzene	0.10	0.09	0.10	134.22
1,4-Diethylbenzene	0.23	0.20	0.22	134.22
N-Butylbenzene	0.08	0.07	0.08	134.22
1,3-Dimethyl-5-ethylbenzene	0.30	0.26	0.29	134.22

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Component Name	Weight %	Liquid Volume %	Mole %	Molecular Weight
1,2-Diethylbenzene	0.26	0.23	0.25	134.22
1-Methyl-2-n-propylbenzene	0.05	0.04	0.05	134.22
5-Methyldecane	0.25	0.26	0.20	156.31
2-Methyldecane	0.26	0.27	0.21	156.31
1,4-Dimethyl-2-ethylbenzene	0.51	0.45	0.48	134.22
1,3-Dimethyl-4-ethylbenzene	0.36	0.32	0.34	134.22
3-Methyldecane	0.10	0.10	0.08	156.31
1-Methyllindan	0.04	0.03	0.04	132.20
1,3-Dimethyl-2-ethylbenzene	0.29	0.25	0.28	134.22
1,2-Dimethyl-3-Ethylbenzene	0.14	0.12	0.13	134.22
C11 Naphthenes	0.36	0.35	0.27	168.30
C11 Paraffins	1.23	1.27	0.92	170.34
N-Undecane	2.74	2.84	2.24	156.31
1,2,4,5-Tetramethylbenzene	0.14	0.12	0.13	134.22
1,2,3,5-Tetramethylbenzene	0.13	0.11	0.12	134.22
C12 Unidentified	2.54	2.45	2.01	161.00
4-Methyllindan	0.14	0.11	0.14	132.20
5-Methyllindan	0.09	0.07	0.09	132.20
1,2,3,4-Tetramethylbenzene	0.04	0.03	0.04	134.22
Tetralin	0.05	0.04	0.05	132.20
5-Methylundecane	0.29	0.30	0.22	170.34
4-Methylundecane	0.02	0.02	0.01	170.34
2-Methylundecane	0.40	0.41	0.30	170.34
Pentylbenzene	0.17	0.15	0.15	148.25
Naphthalene	0.19	0.15	0.19	128.00
1,1 Dimethyllindan	0.13	0.11	0.11	146.22
1,2 Dimethyllindan	0.28	0.23	0.24	146.22
1,6 Dimethyllindan	0.11	0.09	0.10	146.22
3-Methylundecane	0.36	0.37	0.27	170.34
C11 Aromatic	1.95	1.73	1.68	148.25
N-Dodecane	2.35	2.41	1.76	170.34
1,3,5-triethylbenzene	0.05	0.04	0.04	162.27
1,3 Dimethyllindan	0.77	0.63	0.67	146.22
5,6 Dimethyllindan	0.25	0.20	0.22	146.22
1,2,4-triethylbenzene	0.15	0.13	0.12	162.27
2-Methylnaphthalene	0.60	0.48	0.54	142.00
4,5 Dimethyllindan	0.34	0.28	0.30	146.22
Tridecanes	4.24	4.03	3.09	175.00
N-Tridecane	2.08	2.11	1.44	184.37
1-Methylnaphthalene	0.12	0.09	0.11	142.00
Tetradecanes	4.02	3.77	2.70	190.00

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Component Name	Weight %	Liquid Volume %	Mole %	Molecular Weight
N-Tetradecane	0.71	0.71	0.46	198.39
Pentadecanes	1.46	1.35	0.90	206.00
N-Pentadecane	0.14	0.14	0.08	212.42
Hexadecanes	0.11	0.10	0.06	222.00
N-Hexadecane	0.01	0.01	0.01	226.44
Heptadecanes	0.02	0.02	0.01	237.00
Unidentified	2.37	2.49	2.12	
Total	100.00	100.00	100.00	
Total Paraffins	15.00	15.98	14.64	
Total Isoparaffins	27.12	29.25	28.69	
Total Olefins	0.01	0.01	0.02	
Total Naphthalenes	22.26	22.02	24.91	
Total Aromatics	17.89	15.53	18.80	
Unclassified	17.72	17.21	12.94	
Total C4	0.03	0.03	0.06	
Total C5	0.31	0.38	0.55	
Total C6	2.89	3.11	4.35	
Total C7	11.02	11.27	14.42	
Total C8	23.70	24.49	26.87	
Total C9	16.39	16.50	16.56	
Total C10	14.66	14.25	13.49	
Total C11	9.66	9.08	8.04	
Total C12	3.62	3.68	2.72	
C4 Paraffin	0.01	0.01	0.02	
C5 Paraffin	0.13	0.16	0.23	
C6 Paraffin	0.50	0.58	0.74	
C7 Paraffin	1.43	1.60	1.82	
C8 Paraffin	2.29	2.50	2.56	
C9 Paraffin	2.97	3.17	2.96	
C10 Paraffin	2.58	2.71	2.31	
C11 Paraffin	2.74	2.84	2.24	
C12 Paraffin	2.35	2.41	1.76	
C4 Isoparaffin	0.01	0.01	0.02	
C5 Isoparaffin	0.15	0.19	0.27	
C6 Isoparaffin	0.99	1.16	1.46	
C7 Isoparaffin	2.92	3.25	3.73	
C8 Isoparaffin	11.10	12.07	12.39	
C9 Isoparaffin	4.86	5.18	4.86	
C10 Isoparaffin	4.18	4.39	3.75	
C11 Isoparaffin	1.84	1.90	1.41	
C12 Isoparaffin	1.07	1.10	0.80	

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Component Type	Weight %	Liquid Volume %	Mole %
C4 Olefin	0.01	0.01	0.02
C5 Naphthene	0.03	0.03	0.05
C6 Naphthene	1.18	1.18	1.79
C7 Naphthene	4.30	4.32	5.59
C8 Naphthene	7.43	7.38	8.46
C9 Naphthene	6.30	6.16	6.34
C10 Naphthene	2.66	2.60	2.41
C11 Naphthene	0.36	0.35	0.27
C6 Aromatic	0.22	0.19	0.36
C7 Aromatic	2.37	2.10	3.28
C8 Aromatic	2.88	2.54	3.46
C9 Aromatic	2.26	1.99	2.40
C10 Aromatic	5.24	4.55	5.02
C11 Aromatic	4.72	3.99	4.12
C12 Aromatic	0.20	0.17	0.16
Mol WT of Sample, gm/mol	127.61		
Density of Sample, gm/cc	0.7716		

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